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MALKARA LORICATA, A NEW SPIDER (ARANEIDAE : MALKARINAE) FROM AUSTRALIA

Valerie Todd Davies

Summary

A small spider, Malkara loricata, is described and placed in a new sub-family of the family Araneidae. It is characterized by prolateral spines on the tibiae and metatarsi of the anterior legs, extension of the sternum around the coxae, a small posterior sternal projection and a proximal paracymbium in ♂

Introduction

Though never in abundance, spiders belonging to this sub-family have appeared in litter samples and pitfall traps from many forests in eastern Queensland. They also occur in other parts of eastern Australia and in New Zealand.

All specimens have been deposited in the Queensland Museum (QM). Measurements of the cephalothorax length (CL), abdomen length (AL) and of the leg segments were made with an ocular micrometer and converted to millimetres.

Malkarinae sub-fam. nov.

Small spiders. Cephalothorax tuberculate. Sclerotized ring around anterior end of abdomen and another around spinnerets and anal tubercle (Fig. 1-3). The abdominal ring extends beyond the epigastric scutum. Posterior row of eyes pro-curved, anterior median eyes largest. Claw present on ♀ palpal tarsus. Labium wider than long, rebordered; maxillae convergent. Tuberculate sternum extends laterally around coxae and posteriorly to a small blunt projection (Fig. 4). Cheliceral margins toothed. Tibiae and metatarsi of legs I and II with a row of prolateral spines (Fig. 5). Tracheal opening broad (Fig. 6); 4 unbranched tracheal tubes confined to the abdomen. Colulus present. No apophysis on tibia of ♂ palp; a proximal paracymbium, which is not a separate sclerite present. One distal trichobothrium on metatarsi, none on tarsi. The type genus is Malkara nov.

Malkara gen. nov.

Cephalic region of cephalothorax barely higher than thoracic region which slopes to back (Fig. 3). A pattern of paired sclerotized spots on the dorsal abdomen. Receptacula not clearly defined in epigynum. Tip of paracymbium pointing forwards. 'Malkara' is an aboriginal word for shield. The type species is Malkara loricata nov.

Malkara loricata sp. nov.

Holotype: In litter in gully, Mt Coot-tha, Brisbane, SE.Q., R. Raven, V. Davies, 1.ii.80, ♀ QM S682.

Paratypes: Pitfall traps, Mt Coot-tha, Brisbane, SE.Q., R. Raven, 1-22.xii.1979, 4 ♂ QM S683-686, ♀ QM 689; litter in gully, Mt Coot-tha Brisbane, R. Raven, V. Davies, 1.ii.1980, ♂ QM S687, ♀ QM S688.

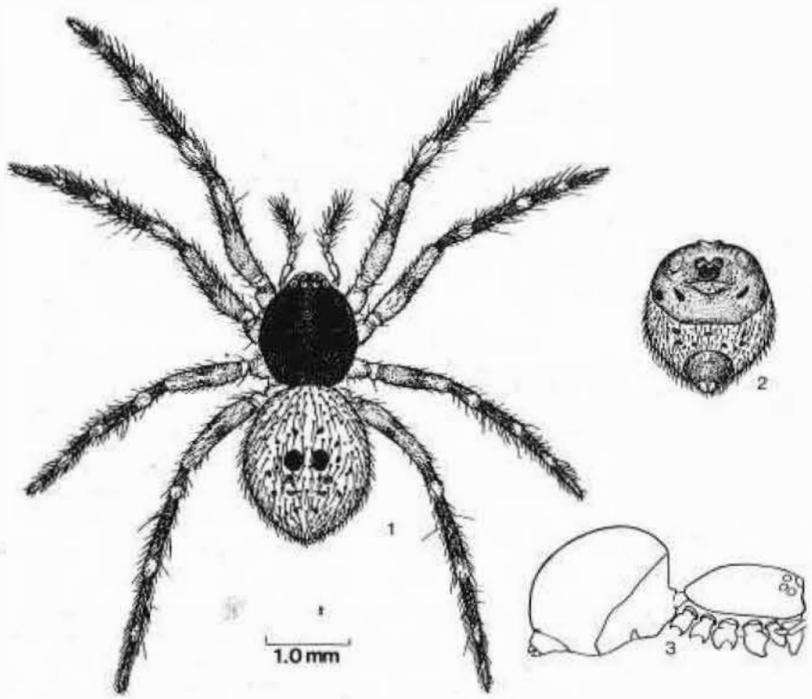

Fig. 1-3 ♀ M. loricata 1. Dorsal, 2. Abdomen, ventral, 3. Lateral

Description of Female

CL 1.17 AL 1.67. Cephalothorax red brown. Patellae, tibiae, metatarsi and tarsi dark brown proximally and pale distally, giving a banded appearance. Viewed from above anterior row of eyes straight, posterior row procurved; from the front both rows procurved. AME:ALE:PME:PLE is 12:9:8:7. Clypeus wide 2 x AME. One tooth on retromargin, 2 teeth on promargin of chelicera (Fig. 7). Dorsal abdomen with two large sclerotized spots and pairs of smaller spots.

Tab. 1: Leg measurements of ♀ M. loricata

	F	P	Tib	Mt	T	Total
I	1.08	0.52	0.80	0.48	0.44	3.32
II	0.88	0.44	0.68	0.44	0.40	2.84
III	0.72	0.40	0.60	0.44	0.40	2.56
IV	1.00	0.44	0.84	0.64	0.48	3.40

Legs 4123 (Tab. 1). One small prolateral spine on femur I; 7 prolateral spines on tibia I, 5 longer spines on metatarsus I and 3 spines proximally on tarsus I. Six prolateral spines on tibia II, 5 on metatarsus II and 3 on tarsus II. Superior tarsal claws with 4 teeth, third claw with two teeth (Fig. 8). Palpal claw without teeth. Three

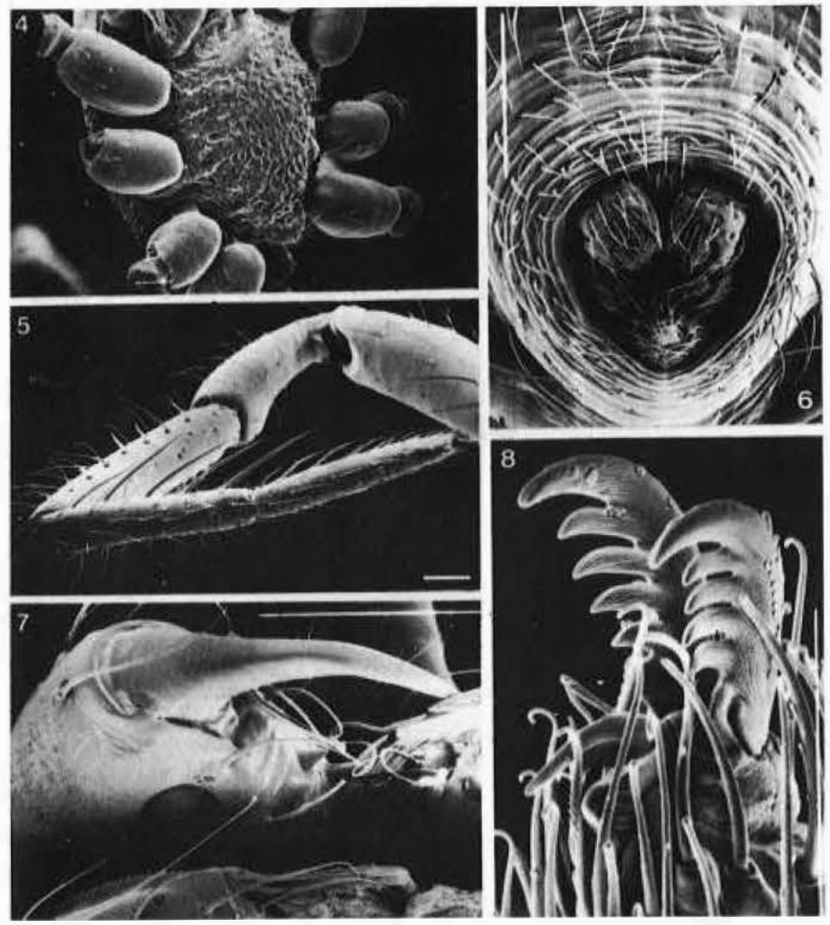

Fig. 4, 7, 8 M. loricata. Fig. 5, 6 Malkara sp. from Bald Mountain, SE.Q.• 4. Sternum, 5. Leg 1, 6. Tracheal opening and spinnerets, 7. Chelicera, 8. tarsal claws. Scale lines: 100 μ for Fig. 4; 80 μ for Fig. 5; 125 μ for Fig. 6; short line 10 μ for Fig. 7, 8.

trichobothria on tibiae of palp and legs I-IV. The base of metatarsal trichobothrium (Fig. 9) and the tarsal organ (Fig. 10) are 'araneoid' (2) in structure. Colulus with 2 setae.

Epigynum is heavily chitinized externally (Fig. 12); the receptacula are not clearly defined (Fig. 13-14). There are 4 unbranched tracheal tubes (Fig. 15).

Variation: Lengths of females varied between 2.83-2.91. In immature specimens there is no sclerotization and the sternum is normal.

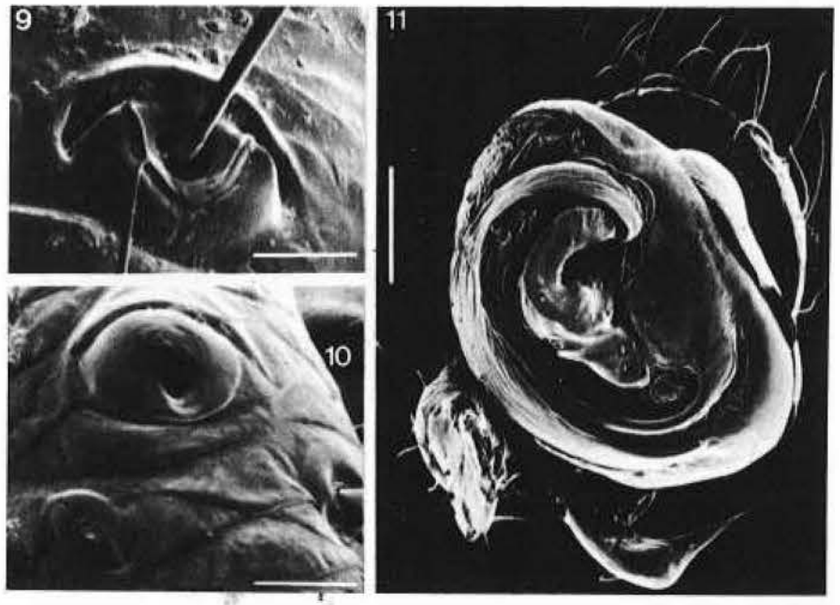

Fig. 9-11 M. loricata. 9. Leg 1, Trichobothrium base, 10. Tarsal organ, 11. ♂ palp, ventral. Scale lines 10 μ for Fig. 9, 10; 100 μ for Fig. 11.

Description of male, QM S686

CL 1.17 AL 1.50. The male is similar in size and markings to the female. Eyes, trichobothria, prolateral spines on leg I as in ♀. Three prolateral spines on tibia II. In the palp, the conductor travels in the opposite direction to the

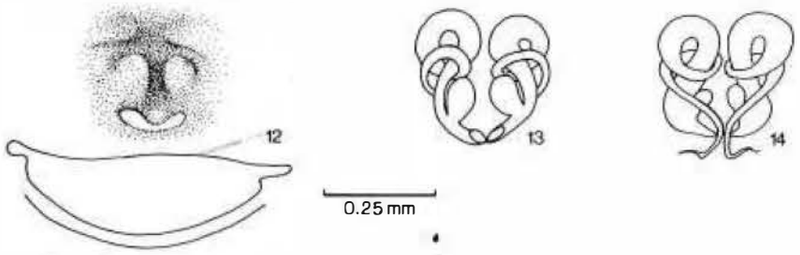

Fig. 12-14. M. loricata epigynum. 12. External, 13. External (cleared), 14. Internal.

embolus and supports it for most of its length (Fig. 11, 16-17).

Variation: Lengths varied from 2.42 - 2.58. Prolateral spines on tibia II, varied from 3 to 5.

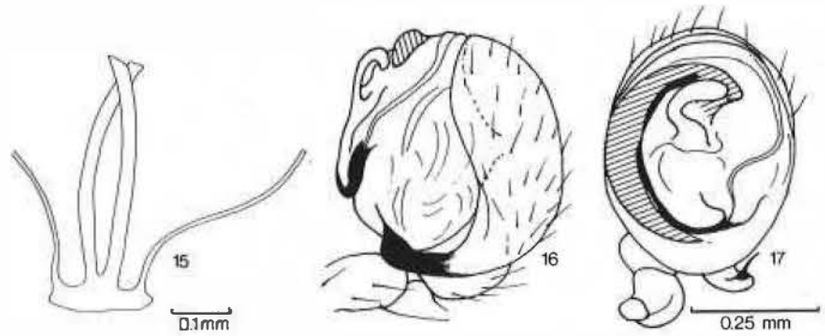

Fig. 15-17. M. loricata. 15. Tracheal tubes, 16-17, ♂ 1. palp. 16, retrolateral, 17. ventral.

Spiders have been found only in leaf litter and never more than one or two in a large sampling. They produced no web when kept alive in the laboratory.

Discussion

There are several Malkara spp. and at least two further genera of Malkarinae from Australia to be described. An undescribed spider from New Zealand (1, pp. 94-5) also belongs in this sub-family. The affinities of these spiders are doubtful and may best be shown by Tab. 2. Until further genera are described they have been placed in a subfamily of the Araneidae.

Tab. 2 Comparison of Malkarinae with araneoid families

Characters	Malkarinae	Other Araneidae	Mimetidae	Cyatholipidae	Nesticidae	Linyphiidae	Theridiidae
prolat. spines on Leg I & II	+	some	+	-	-	-	-
rebordered lip	+	+	-	+	+	+	-
high clypeus	+	some	-	+	+	some	some
prox. paracymbium which	+	+	+	+	+	+	-
is not a separate sclerite	+	+	+	+	+	-	+
Chelicerae separate	+	+	-	+	+	+	+
Wide tracheal opening	+	-	-	+	-	-	-
Abdominal tracheae only	+	+	+	-	+	some	+
Cheliceral boss absent	+	-	+	-	-	-	-
Web absent	+	some	+	-	-	-	-
Comb on tarsus IV absent	+	+	+	+	-	+	-
Sternum around coxae	+	-	-	-	-	-	some

Acknowledgments

Dr. R.R. Forster gave me detailed information on an undescribed malkarinid from New Zealand.

Figs 1-3 were drawn by Sybil Monteith. I am indebted to Robert Raven for the scanning electron micrographs and other members of the Queensland Museum for help with this paper.

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EYES REGRESSION IN PORRHOMMA MORAVICUM MILLER ET KRATOCHVIL 1940 /ARANEI/

Elżbieta Sanocka

Some characters of cavernicoles /albinism, anophtalmia, apterism, physogastry, decreased matebolism, simplification of behaviour, weakening of tropisms etc./ undoubtedly resulted from a regressive evolution. There is a disagreement between the opinions as to how they have come into being. The neo - Darwinians regard them as adaptive to the cavernicolous life, while the neo - Lamarckians consider them as a reaction to the subterranean environment.

The development of the characters common for most subterranean environment inhabitants reaches maximum in cavernicoles which suggests a very early invasion of the caves by the latter. Because of their usefulness while considering speciation the above characters were investigated by the students of various animal taxa. Many authors dealt with the eye structure and regression, e.g. Beier /2/, Eigenmann /3/, Fage /4/, Hadżi /5/, Juberthie /6/, Kosswig and Kosswig /7/, de Lattin /9/, Munoz-Cuevas/10/, Simon /13/ and Vandel /14/, to name a few.

Porrhomma moravicum Miller et Kratochvil, 1940, regarded as a cavernicole in statu nascendi, probably invaded the caves of Kraków-Częstochowa Upland by the end of the Pleistocene /8/. As a result of the study on the eyes regression in this species the following regression types were distinguished:

1 - anterior median eyes lacking or weak pigmentation instead /figs. 1, 2/

2 - anterior and posterior median eyes markedly smaller than remaining ones /fig. 3/

3 - posterior median eyes lacking /fig. 4/

4 - posterior median eyes smaller than anterior median ones /fig. 5/

5 - one eye lacking, three markedly diminished /lacking one is right or left posterior median/ /fig. 6/

6 - anterior and posterior median eyes markedly diminished /fig. 7/

7 - two eyes lacking, other two markedly diminished /fig. 8/

8 - one eye lacking, other four markedly diminished /fig. 9/

9 - only right lateral eye well developed, post median one lacking, remaining ones markedly diminished /fig. 10/

10 - only two lateral eyes visible /two possibilities - figs. 11, 12/

8. INTERNATIONALER ARACHNOLOGEN-KONGRESS

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